



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,278	07/22/2003	C. James MacLennan	MSFT-1735/303422.1	7469
23377 7590 01/24/2007 WOODCOCK WASHBURN LLP CIRA CENTRE, 12TH FLOOR 2929 ARCH STREET PHILADELPHIA, PA 19104-2891			EXAMINER LU, CHARLES EDWARD	
			ART UNIT 2161	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
3 MONTHS			01/24/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/624,278

Applicant(s)

MACLENNAN ET AL.

Examiner

Charles E. Lu

Art Unit

2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment/Response to Arguments*

1. This Action is in response to the Request for Continued Examination dated 12/16/2006. Claims 1-35 are pending. Claims 1-35 are rejected.
2. Amendments to the claims addressing the 35 U.S.C. 101 rejection is noted. The 35 U.S.C. 101 rejection of the claims is withdrawn.
3. Arguments regarding the prior art rejection have been fully considered but are not persuasive.

Applicant argues that Becker does not teach or suggest "data set training data." However, it is noted that "data set training data" is not explicitly defined in the specification. Therefore, the broadest reasonable interpretation is used. The data set of Becker is the data used to train a data set (see Tables on col. 11-12 and the text starting on col. 10, l. 23). Therefore, Becker teaches a "data set training data" as claimed. Also see previous Action.

Therefore, the prior art rejection is maintained.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**4. Claims 1-12, 20-28, and 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Becker (U.S. Patent 6,301,579).**

**As to claim 1,** Becker teaches the following claimed subject matter:

Determining at least one mining structure variable from among said set of at least one variable (see list of determined variables on the table in col. 11); in data set training data, the data set training data comprising at least one set of case data (mushroom data set, col. 10, ll. 30-31, or adult census data set, col. 10, ll. 66-67), each set of case data comprising a stored value for at least one variable from among a set of at least one variable (e.g., variables found in table of col. 11 for adult census);

For each set of case data, retrieving a stored value for each of said at least one mining structure variables from said data set training data (e.g., col. 11, ll. 21-25, referring to the table of col. 11, the first three attributes are from the data, therefore, a stored value from the data set has to be retrieved);

Performing mining model initial processing on said retrieved values (col. 10, ll. 34-38, col. 11, ll. 20-28);

Storing the results of said mining model initial processing (e.g., in a configuration file shown in the table of col. 11, and base table, col. 10, ll. 38-40, col. 11, ll. 42-50, col. 1, ll. 32-49, col. 1, ll. 32-42).

**As to claim 2,** Becker teaches wherein the step of determining at least one mining structure variable from among the set of at least one variable comprises accepting creation operation data comprising data comprising the identity of said mining structure variables (see the created variables in the table of col. 11).

**As to claim 3**, Becker teaches where the at least one mining structure variable comprises a continuous variable (e.g., gross income, table of col. 11), where the creation operation data comprises an indication regarding discretization of the continuous variable (enumeration definition), and where the step of performing mining model initial processing on said retrieved values comprises discretizing said continuous variable according to said indication (see the enumeration in the table of col. 11).

**As to claim 4**, Becker teaches where the indication comprises an indication of a number of buckets into which said continuous variable should be discretized (see the various enumerations and corresponding buckets in the table of col. 11).

**As to claim 5**, Becker teaches where the indication comprises an indication of sub-ranges into which said continuous variable should be discretized (see the various enumerations and corresponding buckets in the table of col. 11, especially "gross income").

**As to claim 6**, Becker teaches wherein the stored results are associated with at least one mining model, and wherein each of the at least one mining model is trained using said stored results (e.g., col. 6, ll. 64-66, col. 10, ll. 29-35, col. 11, ll. 45-50).

**Claims 7-12 and 20-25** are drawn to a computer readable medium or system claiming the same invention as method claims 1-6. Therefore, claims 7-12 and 20-25 are rejected based upon the same reasoning as stated above in the rejection of claims 1-6.

**Claim 26** is drawn to a method claiming the same invention as method claims 1 and 6. Therefore, claim 16 is rejected based upon the same reasoning as stated above for claims 1 and 6.

**As to claim 27**, Becker teaches storing link data indicating that said mining model has been trained on data from said mining structure (see e.g., col. 13, l. 64 - col. 14, l. 10, col. 17, ll. 5-19).

**As to claim 28**, Becker teaches accepting a drill through query for specified data from said mining structure and providing said specified data (fig. 9B, col. 8, ll. 25-30). As seen in fig. 9B, a query has to be accepted to display the data.

**Claims 31-33** are drawn to a computer readable medium claiming the same invention as method claims 26-28. Therefore, claims 31-33 are rejected based upon the same reasoning as claims 26-28.

### ***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**5. Claims 29 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker (U.S. Patent 6,301,579).**

As to claim 29, Becker does not expressly teach where additional mining models are associated with said mining structure, and where said method further comprises training each of said additional mining models using said stored results.

However, Becker teaches training a mining model using stored results, as addressed above.

Additionally, it has been held that duplicating parts for a multiple effect is obvious. *In re Harza*, 274 F.2d 669, 671, 124 USPQ 378, 380 (CCPA 1960). In this case, training a single mining model using stored results is being duplicated to train two or more mining models using the stored results.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Becker with the above teachings, such that additional mining models are trained using the stored results. The motivation would have been to provide data for backup purposes.

**Claim 34** is drawn to substantially the same invention as claim 29. Therefore, claim 34 is rejected based upon similar reasoning as claim 29.

**6. Claims 30 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker (U.S. Patent 6,301,579) in view of Macdonald et al (U.S. Patent 6,006,235).**

**As to claim 30**, Becker teaches a mining structure and a database (discussed above, col. 15, ll. 15-30).

Becker does not expressly teach treating as a first class object.

However, Macdonald teaches treating as a first class object (col. 4, l. 43 – col. 5, l. 5-18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Becker with the above, such that the data mining structure is treated as a first class object in a database. The motivation would have been to facilitate safe data manipulation, as taught by Macdonald (col. 4, l. 43 – col. 5, l. 5-18).

**Claim 35** is drawn to substantially the same invention as 30, discussed above. Therefore, claim 35 is rejected based upon similar reasoning as claim 30.

**7. Claims 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker (U.S. Patent 6,301,579) in view of Hornick et al (U.S. Patent 6,865,573).**

**Claim 13** is drawn to the same subject matter of claims 1 and 2, taught by Becker, in addition to an Application Programming Interface (API).

Becker does not expressly teach an API in connection with the subject matter of claims 1 and 2.



However, Hornick teaches a data mining API (col. 6, ll. 49-67).

Since Becker also teaches data mining, as addressed above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Becker with the above, such that an API of Hornick is used in connection with the data mining of Becker. The motivation would have been to support object oriented programming languages within a data mining system, as taught by Hornick (Abstract, ll. 1-8).

**As to claim 14**, Becker, as modified by Hornick, teaches where the at least one mining structure variable comprises a continuous variable (e.g., gross income, table of col. 11), where the creation operation data comprises an indication regarding discretization of the continuous variable (enumeration definition), and where the step of performing mining model initial processing on said retrieved values comprises discretizing said continuous variable according to said indication (see the enumeration in the table of col. 11).

**As to claim 15**, Becker, as modified by Hornick, teaches where the indication comprises an indication of a number of buckets into which said continuous variable should be discretized (see the various enumerations and corresponding buckets in the table of col. 11).

**As to claim 16**, Becker, as modified by Hornick, teaches where the indication comprises an indication of sub-ranges into which said continuous variable should be discretized (see the various enumerations and corresponding buckets in the table of col. 11, especially "gross income").

**As to claim 17**, Becker, as modified by Hornick, teaches retrieving stored results via a network (fig. 17, col. 27, ll. 3-55). A query has to be sent to retrieve the data.

**As to claim 18**, Becker, as modified by Hornick, teaches wherein the stored results are associated with at least one mining model, and wherein each of the at least one mining model is trained using said stored results (e.g., col. 6, ll. 64-66, col. 11, ll. 45-50).

**Claim 19** is drawn to a system claiming the same invention as claim 13, as addressed above with respect to the combination of Becker and Hornick, in addition to a database for storing the training data, connected with the API, taught by Hornick (col. 2, ll. 25-32), and returning the stored values to said application programming interface.

Becker and Hornick do not expressly disclose returning the stored values to said application programming interface.

However, Hornick teaches an API that supports retrieval (returning) of data (col. 6, ll. 55-67).

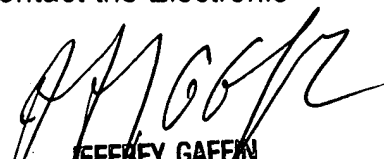
Since Becker teaches stored values, as addressed above, it would have been to one of ordinary skill in the art at the time the invention was made to modify Becker and Hornick with the above, such that the API of Hornick supports retrieval of the stored values of Becker. The motivation would have been to support object oriented programming languages within a data mining system, as taught by Hornick (Abstract, ll. 1-8).

**Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Lu whose telephone number is (571) 272-8594. The examiner can normally be reached on 8:30 - 5:00; M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin be reached at (571) 272-4146. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
JEFFREY GAFFIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100

CL  
Assistant Examiner  
AU 2161  
1/16/2007

/CDL/  
C. Dune Ly